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Bird Migration in the Mississippi Valley

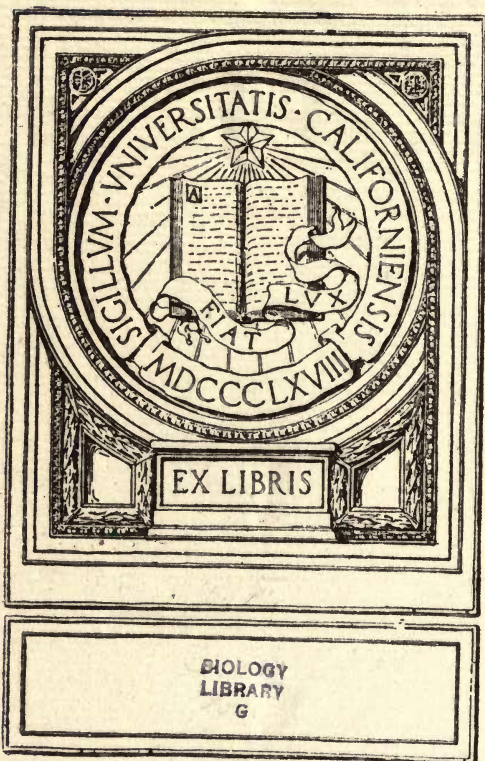
BY

W. W. GOOKE AND OTTO WIDMANN.

PUBLISHED BY

THE AMERICAN FIELD,

DECEMBER, 1883.



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IN THE

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BY

W. W. COOKE and OTTO WIDMAN.

READ BEFORE THE

RIDGWAY ORNITHOLOGICAL CLUB,

NOVEMBER 8, 1883.

PUBLISHED IN THE "AMERICAN FIELD"

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PART I. INTRODUCTION.

(W. W. COOKE.)

During the Spring of 1882 a series of observations on the migration of birds in the Mississippi Valley was conducted under my supervision. The notes collected were published in the *Forest and Stream* during October and November of that year. A more extended series has been successfully conducted the past Spring, and it is intended in these articles to give the full notes from two points in the Mississippi Valley, namely, St. Louis, Mo., the observer here being Mr. O. Widmann, 4024 Carondelet Avenue; and Jefferson, Wis., where I was living the past year. This is done that these notes may serve not only as guides to future observers in determining when to look for each species, but as showing how necessary it is that observations, to be at all satisfactory, should be full, accurate, taken almost daily, and connected with a careful record of the meteorology of the place of observation.

Full as these notes are, compared with the large majority of "Spring notes," a careful study of them will show how much more valuable they would have been had they been connected with a third station mid-way between, and if in connection with them could be had an exact weather report from a place one hundred and fifty or two hundred miles south of St. Louis; since, of course, it will be readily granted by all, that it is not the weather of the place of arrival which controls the movements of our birds—except in rare cases—but rather the atmospheric conditions of the place from which the bird starts on its migratory flight.

To make the record of these two stations as intelligible as possible, it is deemed best to describe the character of the country in full, and the conditions under which the observations were made.

The ground worked in St. Louis was the south end of the city, along the west bank of the Mississippi, which is here about seventy-five to a hundred feet high, and the top of which consists of a long series of sink holes or shallow pits of a quarter to half an acre in extent, densely overgrown with bushes and low trees. The whole southern part of St. Louis is well supplied with shrubs and large trees, furnishing convenient stopping places for our feathered travelers, but the greater part of the notes were made in the heavy timber which skirts the banks of the River des Peres, a small stream which marks the city limits on the west and then turning toward the east enters the Mississippi a little way south of the city. In these woods the observer was alone with Nature and the birds, and, though so near the city, yet was as free from interruption and disturbance as if in the big woods of the Northwest. Opposite St. Louis, on the Illinois side of the river, are extensive lowlands overgrown by willows and heavy underbrush. Occasional visits were paid to these places, but the notes there taken have always been credited to Illinois, and no notes are credited to St. Louis unless they were actually made on the Missouri side of the river. The trips for observation were

taken almost daily, and consisted, during the busiest time of the season, of a six to eight-mile journey to the woods, starting at 4:30 A. M., and after several hours' actual work in the woods, returning at noon, or often late in the afternoon. To these were added many evening excursions, and a constant watch over the movements of such birds as could be found in the heart of the city. A good field-glass was constantly in use, and the shotgun appealed to if any doubt still remained. Having many years of previous study in the same locality to draw upon, this last method was seldom required. It might be added that the country is practically destitute of large bodies of pines, and of any prairie land, which may account for the strange absence of some birds found in abundance at places not far distant.

The other station, Jefferson, Wisconsin, is in the south-eastern part of that state, midway between Milwaukee and Madison. It is a small town of some 2,500 inhabitants, situated on both sides of the Rock River, just north of its juncture with the Crawfish River. My house was situated on the west bank of the Rock River, seventy feet above its surface and both my yard and the yards on each side were plentifully supplied with hardwood trees and several varieties of pines. A quarter of a mile's walk westward brought me out of town into rather thinly settled country, with patches of hardwood timber scattered quite frequently around. A half-mile more brought me to the Crawfish River, there flowing southward, but soon bending to the East, and joining the Rock River a half-mile south of my place. The surface of the country for a mile and a half east and west is flat, constituting what is known as the Rock River Valley. The higher ground farther west was not visited, and all the notes are of the movements of the birds in the valley.

Most of the notes were made on the banks of the Crawfish, at the south end of town, where it was flowing east and west. There, within a radius of a third of a mile, could be found hill and valley—on a small scale—heavy first-growth timber, second-growth brush, marsh, prairie, and mud flats along the river. And no matter which way the wind blew, sheltered spots could always be found. North of town, two miles, at a place called Jefferson Junction, is a large stretch of tamarac swamps, broken by higher land and occasional groves of hardwood. Here bird-life was always found in greater abundance than along the Crawfish, and the trips taken there every Saturday furnished much material for the note-book and the collecting-box. The work of the season consisted in almost daily visits to the woods from 6 A. M. to 8 A. M., five days in the week, with a more extended trip and longer time on Saturdays. Many tramps were also taken after school hours in the afternoon. On many of the cold days the birds were hardly thawed out by 8 o'clock, but although science is good for recreation, bread and butter must be earned, and the school-room demanded my time from 8:30 A. M. to 4 P. M.

In the following notes the plan has been to give first the weather record and the general notes from St. Louis, then the same from Jefferson, and lastly the combined notes on each species separately. The nomenclature used is the latest Smithsonian catalogue.

PART II.

GENERAL NOTES AND WEATHER REPORT, FROM ST. LOUIS, MO., BEGINNING WITH JANUARY 1, 1883.

O. WIDMANN.

We have had unusually cold and disagreeable weather since the first of January. Old Boreas was reigning and kept the ground white, and the temperature below the pleasure-point for ornithological field work. January was cold and windy. February tried to make things better by a two days' rain, with the mercury below 30 dgs. Of course it succeeded splendidly in making matters worse, for everything from the smallest blade of grass to the largest tree was covered with a heavy coat of glittering ice. Consequently ornithology had to go on skates or stay at home. This miserable weather lasted a whole week, from the 3d to the 10th. On the 14th, however, a warm rain and a strong breeze from the south raised the mercury to 62 dgs.

This first warm breeze brought the first flock of ducks, and since that time thousands and thousands have gone north. Between 4 and 5 p. m., on the 15th, twenty-eight large flocks passed over, and at 5 p. m. twenty gulls were in sight, passing slowly up in beautiful gyrations; two small and two very large flocks of geese were also seen. Between 7 and 8 p. m., on the 16th, I counted over fifty flocks of ducks, aggregating over two thousand individuals, going the same way and at the same height. To-night the mercury stands at 25 dgs., and all is white and hard again. Did these ducks know about this approaching great change in the weather and did not mind it, or contrary to the theory of some ornithologists, are unable to read probabilities?

Since this first south-wind period seems to mark a new era in our bird life it will be well to close the chapter of mid-Winter notes now and report what I have seen.

As the weather during the first six weeks of this year did not permit excursions to new fields, I contented myself with revisiting the ground gone over in December, to see what had become of my little friends enumerated in my New Year's report.

Of the three mocking birds mentioned there, two stood the weather bravely and are doing well, but the other has not been seen since the freezing rain of February 3. Bluebirds have also remained at their old places, and as a sign that they did not suffer even during the ice storm, the first mild day two males were already courting a female, with as fine a carol as ever was heard in Spring.

Titmice, chickadees, wrens and nuthatches are not disturbed by any kind of winter weather, as they can find food where few other birds would think of looking for it, while tree holes afford them unexcelled shelter. Nevertheless they all appreciate southerly winds, and become loquacious in their exultations over a big rise in temperature.

Most, but not all of the yellow-rumped warblers have vanished. The pur-

ple finches have become very numerous, large numbers collecting during the "glacial period" in every place where the coral berry or Indian turnip grows. During those cold days, when everything, even their favorite sycamore buttons, was covered with a sheet of ice, they had to put up with this meager food. They worked hard all day to appease their hunger, and then were not satisfied. Hard, unsatisfactory work it was for them, as they do not eat the whole berry, but merely the small seeds within, and even these they have to husk before swallowing. After the birds had worked there a few days, the ground was covered with the husks, skins and pulp. On six acres, overgrown with patches of this plant, I found about a hundred purple finches. About ten per cent. were in crimson while the rest were in plain brown. When the weather moderated they left the coral berries. The American goldfinch braved the cold of January, but the freezing process of February 3 was too much for them. They have almost wholly disappeared; a walk of nine miles in nine hours revealing only two birds. White-throated, white-crowned, song and tree sparrows, and the black snowbird still remained in their winter quarters. Old Pipilo has braved the cold well, and his call comes from the same thicket as in December, while Mrs. Pipilo is seen not a hundred yards off. The cardinal grosbeak is a hardy fellow, still he likes warm days in Winter better than cold ones. When the sun shone brightly on the 12th inst. he was much pleased with it and gave vent to a lovely song.

The crow seems to degenerate! It cannot stand so much as it used to. I found them badly starved and frozen with a terribly empty stomach, and the whole bird not more than half its usual weight. Blue jays still know how to keep themselves from starving, or else they manage to live on noise-making.

The downy and hairy wood-peckers remain at their places, and are bound to make love the first warm day, no matter how deep the mud is. Mr. Red-head tried his best to stay and live on ice-cold acorns, and such like, but when I met him on cold days he did not say much, and seemed to suffer remorse for not going with his brethren. The flickers remained, and were doing well on the 12th inst., but they looked as if they were resolved not to stay with us next Winter.

The following is a list of the new species I have seen since my last report:

Pine Goldfinch—One bird on January 18.

Golden-crowned Kinglet—Two pairs on January 6.

Brown creeper—One bird on January 6.

Redpoll Linnet—One bird on February 7, and a flock of from thirty to thirty-six on the 12th. They were wholly unacquainted with such a thing as a shotgun.

Lapland Longspur—On January 6 there was a flock of thousands on a field grown over with sedge, upon the seeds of which they were feeding eagerly. It appeared as though they had made a contract with the owner of the field to clear it of every seed in the shortest possible time. And how they did work! A pretty hard work it was, too, as they had to husk the minute seeds. They were unwilling leave their task undone, and a shot had no other effect than to make them go up in a cloud with a noise like thunder, circle a few minutes and then come down again near the same spot. They seemed too, to do the work systematically; every few minutes the rear portion of the

army flew over the heads of the others in front, and all moved in the same direction.

Swamp Sparrow—One bird on January 29, in the same place I found one last Winter.

Purple Grackle—Four birds on January 18, and two on the 29th.

A few gulls remained here and were seen several times over the Mississippi at the south part of the city, where the strong current prevented the forming of ice.

Following are the notes for the week from February 18 to 24:

The weather was cool, partly clear or fair. Northerly winds, and just warm enough to keep the ground in an exceedingly muddy condition. It required more than ordinary energy to pull through in order to be *au fait* to the doings of the progressing season. The equatorial wave which stirred the water-birds to northward advancing on the fourteenth, fifteenth, and morning of the sixteenth, and which was so abruptly met by its antagonist, the polar wave, has wrought some changes in the status of our *ornis*.

The most noticeable change is the great increase of bluebirds, or rather, the arrival of our bluebirds, if we do not count the few birds wintering with us.

Ducks were very plentiful in this neighborhood all the week, but no great move took place until yesterday forenoon, February 24, when with a light rain and strong, warm (62 dgs.) south wind, large flocks were seen to go north at some height; also troops of Canada geese.

This migratory movement was again abruptly stopped, when at noon the black western horizon announced the oncoming Norther, which, during the afternoon, forced the mercury down to 32 dgs. It is still Winter with us, and no changes in our *ornis* are expected during the next few days.

Although the weather during this week, February 25 to March 4, was fine and seemingly very favorable to the movements of birds, the fact is, that it brought no birds at all. We have had clear skies, lively drying winds, with a warm sun and four frostless nights. We have had all kinds of winds, but have not had that soft moisture-laden south wind which brings us the dark clouds from the gulf and the birds from the gulf-bordering countries.

On our vegetation the clear, warm skies and frostless nights have had great effect since February 28. Within three or four days the yellow of the wheat-field has turned into a beautiful green, and many plants, besides the grasses, put forth their young leaves. Around the opening blossoms of the red maple the bees are swarming, and animal life stirs everywhere, since the hot sun of the 28th gave the first start. This last day of February was remarkable as an instance of the great effect which a few hours of sunrays have in a clear and still air, on an early Spring day. After an extremely clear night, the temperature of the air was a little above freezing, but the ground was somewhat stiff in the early morning (from radiation, I suppose). Soon, however, the sun began to make itself felt, and at 11 a. m. the first frog commenced to croak. At noon a host of his brethren had joined him on all sides, and by this time the mercury had risen to 113 dgs. in the sun.

The mud under the shallow water of the swamps began to move in many places, and small larvæ appeared with writhing motions. Minute black flies danced in the air, and in the dry rubbish ran numbers of spiders to and fro. Craw-fishes of small and large sizes crawled up the banks of the creek,

over the surface of which a variety of water beetles perambulated. In short, there was life everywhere, where a few hours before the death of Winter had reigned. It seemed to me to be the awakening of Spring, and the scene was perfected when the spirited "honk" of great numbers of departing geese was heard overhead.

This week, March 4 to March 11, was remarkable for its scarcity of birds. No birds have arrived, although we have had two south-wind periods, but of too short duration. On the fourth the wind shifted rapidly from southwest to west, then to northwest, north, northeast, and on the fifth with a light rain to southeast, and during the night to southwest, the temperature going up all the time from 30 dgs. to 50 dgs., only to sink down again to 30 dgs. during the sixth, with the wind from the northwest increasing in strength.

March 7, clear, cold, temperature from 19 to 31 dgs. Wind northwest, north and northeast.

March 8, clear, bright, but cool wind from the southeast and south. Temperature from 22 to 44 dgs.

March 9, after a clear, cool night (34 dgs.), we had a clear day with a good breeze from the south, with a maximum temperature of 64 dgs. until the wind changed suddenly to northwest at 5 p. m.

March 10 and 11 we had high winds from the west and northwest, with a partly clear sky, and temperature near freezing.

I had expected many species, which generally arrive during the first ten days of March, but after having been through field and woods all day long on the eighth and ninth, I was certain that not a single chippy nor field sparrow, towhee bunting, American goldfinch, purple grackle, etc., had come.

Just now, we have even less land birds here than in January and February. The bluebirds, robins, meadow larks, and red-winged blackbirds, are the only ones which have arrived and spread, while many Winter visitants have left. The Lapland longspurs and the redpoll linnets have not been seen again; the purple finches have almost all gone. The gold finches have not yet returned. The tree sparrows have thinned out, and the snow birds are decidedly less numerous.

The eleventh and twelfth brought no change, the weather was cold and windy. The thirteenth was foggy, but two light thunderstorms in the afternoon cleared the atmosphere. On the thirteenth I met the first field sparrow, a male, in song, at the same place where I found the first bird last year, on the first of March (twelve days earlier). The fourteenth was expected to bring many changes, as it was the day after the first shower, followed by a warm night with southwest wind. The day opened brilliantly; a clear sky, soft, pure air, 51 dgs., and a light southwest wind. But it was the old story over again, wind and mercury went up too high, and a fierce thunderstorm came up and down went the mercury again to 31 dgs. on the following day, which remained cold with a strong northwest wind.

The sixteenth was a fine day, cold at first, but gradually growing milder and very pleasant, with a brisk southwest wind. Birds were active till 1 p. m.

March 17. Another fine day, but no additions.

Sunday (March 18) was fine, the temperature went up rapidly from 51 to 78 dgs. in the afternoon, until the wind shifted from south to north, almost unnoticed at first, as there was no thunderstorm and not a drop of rain, but the

Norther broke upon us at about 4 p. m., with a velocity of thirty, and at 6 p. m. the mercury was down to 46 dgs., and at 10 p. m. to 29 dgs. It is the greatest change in temperature (within such a short time) that I remember.

Yesterday (March 19) it was cold (19 to 32 dgs.), with a sharp northwest wind, and to-day it has been snowing all day with the mercury below 30 dgs. I pity the poor martins which were induced to go so far north last Sunday. I hope they went back a good distance, or else they must perish, as they could find no food, and the nights were too cold for them.

From March 18 to April 3, there was a perfect standstill in everything. The weather being cool, gloomy, with northerly winds, and occasional snow and cold rain. Birds did not move, except *Fringillidæ*, which were found more numerous on March 30. The snowbirds were found collected in large flocks, and very excited in spite of the cool rain, and in a place where twenty wintered, I found an army of two hundred, singing, chasing, etc. Field sparrows, song sparrows, fox sparrows, and towhee buntings, had increased; also the blackbirds, meadow-larks, and the small wintering parties of white-throats and whitecrowns had swelled to about twice their numbers. April 3 was the first fine day. The wind had changed during the night from north to southeast. No new arrivals on this day. Cowbirds were seen, but they had probably been here before in company with blackbirds. In the evening of this day (April 3) the first martins came back again (had been gone since March 18), and a rough-winged swallow. At 9:20 p. m., I heard distinctly the voices of wandering robins flying over the city. The sky was clear, mercury 50 dgs., and a light southeast breeze.

This night brought us numbers of birds. The first thing in the morning of the fourth was the ditty of the chippy. The van had arrived during the night. Wherever I went on the fourth there were robins and flickers, and the number of blackbirds was very great (redwings and grackles). Among the arrivals were also many golden-crowned kinglets and creepers. Also a troop of cranes passed by at 6 p. m. The next night brought us still more birds, and the fifth of April was a glorious day.

The day had opened with a light thunder-storm, after a calm, warm night (mercury at 60 dgs.). The day was sultry, with threatening clouds and light variable winds, just the weather for birds and bird song. The night had brought the first thrashers, the Bewick's wren, and the bulk of rubies, chippies, towhees, more robins and flickers, etc.

The next three days were cooler, but the afternoon of the eighth was warm and the first swifts and cormorants came in advance of the new wave.

The night of April 8 was warm, with a light south wind, clear to fair. It took off the last few fox and tree sparrows, many snowbirds and song sparrows, robins and flickers, purple finches, etc. It brought us clouds of yellow-rumps, the grand army of Peabodys, more swamp sparrows, white crowns, chippies, hermits, water-thrushes, gnat-catchers, and flocks of thrashers. We have had very warm weather since that. The thirteenth and fourteenth were hot with high southerly winds, but few arrivals were met with; the van of a few species, such as the white-eye, the cave and barn swallow, yellow redpoll, has been seen, and others have increased, especially the swifts and gnat-catchers, the snipes and yellow-rumps, and perhaps a few others. A few have disappeared, namely, the snowbirds, ruby-crowned kinglets, creepers,

rusty blackbirds, etc. The most conspicuous birds of the present time are the yellow-rumps, Peabodys, thrashers, towhees, chippies, cow-birds, grackles, redwings, and meadow-larks. Crows, robins, phœbes, blue birds, shrikes, field-sparrows, and Carolina wrens have nests or are building; also redbirds and king-fishers. Even chippies and towhees have commenced.

April 17.—Sunday was a cool day, with a strong west wind, but clear, and the wind subsiding in the evening. The night was clear and cool, and Monday opened with a light southwest wind, clear, with mercury at 48 dgs. It was a fine, perfect day, not too warm, but it brought only two new species—the house-wren and the golden-crowned thrush.

Last night was a beautiful night, almost perfectly calm, at least in the early morning, smoke going straight up, and not a cloud visible. It was so calm and clear that in deep places a light hoar frost was found, although my thermometer was not below 48 dgs.

It was a birds' night, and I found quite a number of old friends in the woods this morning; no migrants, but Summers sojourners, at their breeding places, on the same trees as last year; all old males in high plumage and in fine song.

April 18.—Fair weather continued; night was warm, hazy, with light south wind. To-day there is a brisk southwest wind, and threatening indications.

April 19.—After a very dark night, and a light rain from 5 to 7 a. m., after which it was cloudy, the afternoon was clear and fine, with cool northwest wind.

April 20.—A clear, cool night, and most beautiful day. Clear and cool, with a brisk southwest wind (had shifted during night). No change in *ornis*. Much the same birds as on the 18th and 19th, with additional individuals of the same species.

April.—The twenty-first opened cloudy, with strong cool (55 dgs.) north-east wind, turning at noon to southeast with a light rain; the afternoon being warm (70 dgs.) and in the evening, as well as twice during the night there were thunder storms, with heavy rains, but wind continues in the south-east, with prospect of more rain to-day.

Birds are moving, and the next few days will reveal a number of new species, and a large increase of such as are now represented by the advance guard only.

April 29.—A cold period, preceded by a series of thunder storms set in during the twenty-third, and put a check to the movements of birds. In fact, the cold night of the twenty-third chilled all our birds so much that the bright sun of the twenty-fourth could not induce them to their usual song, and everything seemed deserted. The thrasher and chippies, so noisy before, had nothing to say, and even the ubiquitous blackbirds were *non est*.

The next day was better, but still cool in the morning, and it took several hours to warm the birds up enough to give a song from time to time. During the twenty-sixth the wind changed slowly from north to south, but the next morning found it back again to north. It is cloudy, and there is not the change in our *ornis* that I expected.

Yesterday the wind was southwest to northwest, with dark clouds, and falling temperature. To-day is clear and bright, but cold, with strong north

wind. Taken altogether this week, usually one of the best of the season, was very unproductive, and it required considerable search to discover a few individuals of species not before seen. It must be understood that such new arrivals are not met with the very first day after their arrival; they may be here for a number of days before they are discovered. The record of simple first dates without further observation of the species is therefore of little or no value for the study of migration.

The correctness of this opinion is confirmed by the experience of this last week. I met, for instance, the first indigo on the 21st, but I have not seen any more since that day. I have met the first Savannah sparrow and the first Lincoln's finch on the twenty-third, but none since, in spite of the most careful lookout, and frequent visiting of nesting stations of former years. I heard the song of the first Bell's vireo on the twenty-fifth, but none since, although I passed daily many of their old stands. I saw and heard the red-eyed vireo on the twenty-fifth, but only once again, on the twenty-seventh. The first Tennessee warbler was met with on the twenty-fifth, but only once again, on the twenty-seventh. In short, it requires a good deal more than first dates to get an insight into the movements of our birds. During the week sixteen new species have been seen, but all of these sixteen new arrivals did not change our *ornis* in the least; it required an ornithologist to discover them. But the real change in our *ornis* comes from the increase and prominence of a few species, the van of which came during the preceding week (18th—22d), and the bulk between the twenty-fifth and twenty-ninth. The rose-breasted grosbeak and the Baltimore oriole are the conspicuous and noisy birds of to-day. Females have arrived, and old males are now back in full numbers.

May 1.—Day after day I go out with the expectation of meeting friends whose arrival has long been due, according to my records of former years. But in vain. Two more days have gone by, and no north bound bird, no new species has arrived. The host of transient warblers, and some of our Summer sojourners have not yet made their appearance, and are getting more or less behind their dates of other years.

The weather has been exceedingly fine for all purposes of *homo sapiens* at least, especially for *homo sapiens v. rusticus*, pleasant, clear mornings, clouding over toward noon, thus keeping us from getting overheated. Dry weather and cool nights. But just this dry weather and these cool nights, I think, are the cause of the retardation in the arrival of our insect-loving travelers; and, indeed, it is astonishing how free the air is from all kinds of insects. Though it is greatly beneficial to the comfort of man, yet not swelling the reports of an observing ornithologist. Vegetation is progressing slowly but steadily, and our beautiful warblers will find abundant shelter in the thickly-foliaged maples, elms, poplars, lindens, etc., as well as the orchard trees. Even oaks and hickories have put forth half-grown leaves, and are covered with catkins. Buckeyes and paw paws are in fine bloom.

We have had no hot period since the middle of April, but I think there is one approaching now. Easterly winds have blown for several days, and if the wind should turn to the South now, we should have plenty of work. Swamp sparrows, Peabody birds, yellow rumps and yellow redpolls are still remaining with us, and are all assuming the high-colored state. When they

go, mark you, there will be few among them without their wedding clothes. The only change during the last few days is the great increase of the gold finch and the black-throated bunting.

May 2.—A full bird-wave reached us last night. The night was clear and warm (66 dgs. to 55 dgs.), and the wind south. It brought us thousands of birds, and the woods are just full of them. It is impossible to observe all birds around me, especially since the capture of my first Cape May warbler (*tigrina*) took a part of my best time.

May 3.—Wind continued south until night, when a cool north wind set in; maximum temperature, 90 dgs. Bird life at its height. Number of species and individuals, at or very near highest of the year. All the Summer sojourners are here (with few exceptions), and most of them in full numbers.

May 4.—Weather cool, rainy, dark, with north wind. Birds and observer take a rest.

May 5.—The most beautiful day of the year, genial temperature with north west wind. I found sixty different species of birds on ten acres of ground.

May 10.—When I made my last report (May 5) I had no idea that the Spring migration would so soon be over, but, alas! All seem now to be gone.

The high south wind of the last three days (seventh, eighth and ninth), has carried away many unwritten pages of future reports.

The birds passed us without stopping. Had this cold wave which we enjoy to-day struck three days ago, we might have had a fine time. Dry, hot, high, south wind is always bad for the observer. Looking for birds in such weather is hard, unsatisfactory work. That rustle of the shaking leaves, rustles all enthusiasm out of my heart, and I go home discouraged. To find only one new species from May 6 to May 10 is enough to discourage anyone.

This one species was the inevitable yellow warbler, and I met with one male on the ninth, and again on the tenth.

In vain did I look for the tawny thrush, orange-crowned, mourning and Connecticut warblers, clay-colored sparrow, olive-sided and yellow-bellied fly-catchers.

As a whole this season was bad for this particular part of the country. We have had almost no bird-waves because the polar wave never struck at the right time. The Savannah and Lincoln's sparrows, the pine-creeping and the bay-breasted warblers and the least fly-catcher have stopped but a moment, to be off next day. Other species seem to take other routes, being seldom or never seen here, especially the black-throated blue, Blackburnian, black-throated green and hemlock warblers, and the clay-colored sparrow.

Thanks to the unfavorable weather of the last four days even some of my Summer sojourners are still without dates, namely, cuckoos, hummers, and nighthawks. Others which are local have to be looked after, such as the prairie and worm-eating warblers, the marsh wrens, whip-poor-wills, etc.

May 19.—Strange, indeed! I thought migration was over on the 10th. How great was my astonishment on the 14th to find a good old-fashioned bird-wave. The woods were full of transients, and this is how it came. May 11.—Cold with northwest wind. May 12.—Cold, with northwest wind. May 13.—Rain, with southeast wind and rising temperature, and a thunderstorm at midnight! Next morning, the 14th, the wind was shifting to west and northwest.

while on the 15th it continued northwest until the evening of the sixteenth, with cool nights.

The theory is that the transients were overtaken by the rainstorm of Sunday (13th) night, and kept back by the cool nights following. Since the 17th we have had warmer weather with southerly winds, and the transients have thinned out decidedly. The best days were the fourteenth, fifteenth and sixteenth. There is no doubt but some birds were suddenly stopped. Water thrushes, Lincoln's finches, yellow-bellied fly-catchers, etc., were found in a dry pasture in the city, and the short-billed marsh wren by the way-side.

May 21.—Yesterday was one of those hot days with southwind, and little could be done. Last night copious rains, to-day a sultry, threatening southwest wind. Look out for a grand move.

May 29.—Cool weather continues up to this day, but two warm nights, the 23d and 24th, have taken off all transients. Migration for this Spring is at an end.

PART III.

GENERAL NOTES ON BIRDS AND WEATHER, AT JEFFERSON, WISCONSIN, IN THE SPRING OF 1883.

W. W. COOKE.

January 21.—Coldest day of Winter; mercury 32 dgs. below zero.

January 26.—Hail and rain in small quantities with south wind. From then on there was medium Winter weather until February 12, it began to feel Spring-like. The next day was also pleasant; mercury at 27 dgs. with south wind.

February 14.—Commenced to thaw. South wind.

February 15.—Warm. At night heavy rain with thunder and lightning.

February 16.—Rained all day. Strong south wind.

February 22.—Slight snow, wind north, mercury at 16 dgs. Clear.

February 23 to 28.—Constantly growing warmer, with mostly south, but not strong winds.

March 1.—South wind at 6 a. m., mercury was 27 dgs.; at 9 a. m. 36 dgs.; at 1 p. m. 55 dgs. Snow three-fifths gone.

March 6.—Snow all gone,

March 9 to 12.—Severe northwest wind, everything frozen solid.

March 13 and 14.—Very warm with west wind, starting the waterbirds northward. Next day cold, with hard northwest wind. Winter once more and not a bird to be seen.

March 16 and 17.—Warm southwest wind.

March 18.—Cold, almost to zero. No migration whatever took place from this date until the 23d.

March 23.—Night of the twenty-third clear, barely 32 dgs. with south wind. Just the night for birds, and the morning showed quite large arrivals of snowbirds, tree sparrows robins, blackbirds and bluebirds. But Spring was not yet to come and from the 25th to evening of the 31st, the nights were cold and freezing, with northeast to northwest winds, and snow on two days. No increase in any birds.

The first of April, it began to change.

April 2.—Was a bright, beautiful Spring day, with the night before clear and still, but so cold, that no migration was perceptible. The first frogs appeared, and mud-turtles were very numerous along the river bank.

April 3.—During this day preparatory moves were made by ducks and geese, and the night of the 3rd ushered in the first real wave of Spring migration. Queer weather for migration.

April 3.—This day was a mixture of snow and rain, and the night was very damp and cloudy with a warm south wind, and mercury at 40 dgs. Yet this dark, cloudy night brought the bulk of the snowbirds and tree sparrows,

many song sparrows, the first fox sparrow, ruby-crowned kinglets, Winter wrens, kingfishers, yellow-bellied woodpeckers, white-bellied swallows, phoebes, brown creepers and hermit thrushes, besides swelling the numbers of all kinds that were here.

April 5.—A twelve hours rain to-day.

April 6.—This day brings four inches of snow. It seemed strange while walking through it the next day to find two full sets of crows' eggs.

April 8.—Changeable.

April 9.—Not Spring but Summer, with the mercury at 76 dgs. in the shade and a strong south wind with not a cloud to be seen.

April 10.—Another Summer day, with a slight admixture of New England weather, raining in the afternoon with the mercury at 60 deg., then the wind slowly changed from south to west, and northwest, and during the night it froze. No wonder the birds seemed discouraged this Spring.

April 12.—Bright, warm and windy, and in the afternoon cloudy. Mercury at 48 dgs. at 8 a. m. The first day this Spring that the air has been full of song. The great change was produced principally by the bursting forth in full song of the tree sparrows, which have been gradually increasing in melody since March 23. To-day they and the song sparrows were on every bush and tree, each one striving to outdo the others.

April 13.—Warm, with a strong south wind and bright sky. Night of the 13th was warm and clear. It was our first Summer night.

April 14.—At 6 a. m. the temperature was 65 dgs., with a strong southwest wind. At 9 a. m. the temperature was 76 dgs. and at noon a hard rain set in, and during the night of the 14th it cleared off cold.

April 14.—The first thing that struck me on reaching the woods this morning was the stillness; so different from two days before. Not one-tenth of the song sparrows were left and only four tree sparrows were seen, the scattered black birds were gone, and even the robins were much less numerous. It seemed as if all migrants, which had halted for a few days, had taken the favorable opportunity of the south wind and left for the north.

April 15.—Mercury at 42 dgs. Cold and chilly all day, with a strong west wind, bringing all the white-bellied swallows, which for a week had been circling over the city, into one flock, which kept all day over one place on the river near the principal bridge, where they were somewhat sheltered from the chill wind by high hills and buildings. April 16—April 24.—The next eight days were a succession of cold chilly nights, twice freezing; with rather clear, but not warm days. Very little migration took place, and the general character of the birds here was unchanged. Only one new arrival was noted, the chewink, and no departure at all.

April 24—April 28.—These days were a little better. The nights were still cold—the first two nights freezing—but the days were warmer, and bird life was more abundant and much more active. Almost every day showed new species, though none of the really Summer birds had arrived, and the lingering snowbirds, ruby-crowns and purple finches, gave a Winter aspect to our *avifauna*. The first wildflower—the hepatica—opened on the twenty-fourth, and the next day the first leaves of the earliest laurels began to show.

April 29—May 3.—The next week was a transition period from Spring to

Summer. The 29th and 30th were cloudy, cold with nights a little above freezing, with north and northeast winds; but the days were quite warm. Mayday showed a few flowers, the caltha, wood anemone, claytonia, sanguinaria, rue-anemone and one crucifer in blossom; while only a few shrubs, as the currants, raspberries, box elders, etc., had put forth leaves, and they were not more than one-tenth grown. A walk in the evening showed no new species, and scarcely any change in the birds from what they were a week before. The night of the 1st it rained all night incessantly, but not hard, the wind changing after 10 p. m., from south to north. In the morning we had a few hours of sunlight, and again steady rain from the afternoon of the 2d until 9 a. m. of the 3d. Yet these two dark, stormy nights brought us our first Summer birds, and marked a distinct and decided change from Spring to Summer. They brought us the house wren and the chippy, large flocks of white-throated sparrows and blackbirds, and, at last, the warblers. Six species were identified before a pelting rain drove me out of the woods.

May 4.—The night of the 3d was cold and foggy, mercury at 40 dgs., with north wind, and that of the 4th was not much better. But little movement took place, and the new birds noted—small billed water thrush, blue-yellow backed warbler, warbling vireo, etc., were in small numbers and inconspicuous.

May 5.—The afternoon was enlivened by the song of the first bobolink. A warm evening, and perfectly clear, still night, with mercury at 46 dgs.

May 6.—I expected to find that great movements had been taking place, and, indeed, considerable change was apparent, but a rain set in fifteen minutes after I left home at 6 a. m. and continued until just before I returned at 8:30 a. m. I found the first kingbird of the season awaiting me, around the corner was the first rosebreasted grosbeak, as full of song as he could hold, and at last a catbird, nearly three weeks behind his time. White throats had noted the favorable night and left. I found only one-tenth of yesterday's numbers. In the evening there was a strong south wind, with much thunder and lightning, and a little rain; very dark. Cleared off some time in the night.

May 7.—At 4 a. m. it was clear, with southwest wind and mercury at 58 dgs. Alternately cloudy and clear all day with wind suddenly changing to north at 10 a. m. Maximum temperature 70 dgs. Not much movement of any species, but some changes in nearly all. The chippy, chimney swifts, grass finches, phœbes, and martins have increased somewhat, and are in about full Summer numbers. The greatest change to-day is produced by the arrival of numbers of Baltimore orioles, rosebreasted grosbeaks, and red-headed woodpeckers, all in full voice, and the scream of the latter trying vainly to drown the beautiful melodies of the other two.

May 8—May 9.—The next two days brought little, but rain with variable winds from north to south. The afternoon and evening of the 9th the rain fell in torrents, flooding the whole country. Much of my best ground is changed to marsh.

May 10.—The rain ceased at 3 a. m., and a walk in the woods from 5:30 to 8:30 a. m. revealed considerable movement among the birds. The most noticeable changes were the arrival of the goldfinches in flocks, and the decided increase in the bobolinks. The females of the grosbeaks, towhees

and Baltimore orioles, had also arrived. Also quite a small army of warblers had come the rain, bringing the first redstart, magnolia, hemlock, black poll and Nashville warblers; and at the same time the first yellow-throated and blue-headed vireos were seen, also the first tanager. A great increase had taken place in the kingbirds, chimney swifts, and least fly-catchers. Strange that so much change should have taken place in the face of a north wind and a very heavy rain storm!

May 11.—Night before was clear for the first time in more than two weeks; wind northwest, and moderately strong; hard frost, and froze in lowlands. I was in the woods from 6 a. m. to 8 a. m. Apparently no change whatever; birds scarce owing to cold, and I could not stay out until it was warmer. Only noticeable thing seen was seventeen blue jays in one flock passing leisurely north through the tree tops.

May 12.—Night before clear, with strong north wind, mercury 40 dgs. The morning was beautiful, but chilly, was out all day and found bird life quite abundant, but still far from full Summer numbers.

May 13.—Night before cloudy, with north wind and mercury at 40 dgs. The day was half cloudy until 2 p. m. when it began to rain, and continued almost steadily until early the next morning. North wind and mercury at 43 dgs.

May 14.—This morning it cleared off at 5:15, mercury at 40 dgs., with a north wind still. No change of birds was apparent. The evening turned out to be bright moonlight, with mercury at 48 dgs., and a south wind.

May 16.—This day was clear with maximum temperature of 71 dgs. No new arrivals were noted, and no increase perceptible in any, but decrease or total absence of some told that the night's favorable opportunity had been utilized. A decided decrease was apparent in all *Hyllocichlae*.

May 17.—Night before was moonlight, warm and clear with south wind. Just such a night as birds most like for migrating. Yet, although some movement was apparent, it was not great.

May 18.—Night before cloudy with south wind, and from daybreak the mercury rose rapidly. The day was hot, sultry and cloudy, with a strong south wind from 9 a. m. to 2:30 p. m. The thermometer marked 82 dgs. in spite of the clouds. At 3 p. m., a regular cyclone of the Iowa kind advanced straight toward us until it reached the brow of the hill a mile and a half west, when it split and the two parts passed north and south of us, and destroyed two neighboring towns. Evening and night warm and rainy, the strong south wind still continuing. I was not in the woods at all on the 18th, but either on the night of the 17th or 18th there must have been much migration, as I found great changes when reaching the woods on the 19th.

May 19.—This day can be set down as the height of the season for birds at this place, but yet so many of the transients had already passed northward that, although the woods were full to overflowing with song, the most of the melody came from a few birds. The redstarts furnished a large part of the music, and the rest of the choir was composed principally of vireos and fly-catchers. With this day terminated most of the work in migration for this Spring. It was the grand swell of the migratory wave just before its final subsidence. The arrival of only six birds remained to be chronicled, and the

next few days were so cold, cloudy and disagreeable that the departure of the transients still remaining was slow and hardly noticeable.

May 20–May 23.—These days were cloudy and rainy with wind shifting from west to north and northeast, and the mercury hanging around 40 dgs., with a fall, twice, to 32 dgs.

May 24.—After a hard rain the night before, we again had Spring weather and a bright, clear day. It showed the last arrival of the season of the Summer sojourners, the cuckoos, which usually bring up very near the end of the list; and it also showed the tawny and olive-backed thrushes as numerous as any time this Spring.

But little remains to be chronicled of this Spring's migration. The last transient visitors, the Connecticut and the Canadian fly-catching warblers, put in their appearance on the 26th; after a four days' visit, left us on the 29th, taking with them nearly all the remaining transients; and when the last olive-back departed on the last day of May, migration was ended.

PART IV.

NOTES ON EACH SPECIES OF BIRD OBSERVED AT ST. LOUIS, MISSOURI, AND JEFFERSON, WISCONSIN, DURING THE SPRING MIGRATION OF 1883.

Wood Thrush (*Hylocichla mustelina*). St. Louis—Summer sojourner. The first seen was on April 19, when two were found at old stands singing a few strains, when it began to rain. April 22, two were in full song. April 29 they were still quiet and scarce. May 1. They are exercising every morning now, and by the 16th had become conspicuous and diligent songsters.—Jefferson—Summer sojourner. First one was seen on May 10, and by the 12th there had been a decided increase and many were heard and six or eight seen; the bulk of the birds have not yet arrived. May 17. This day marked the height of the migration, and by the 21st they had settled down to Summer numbers.

Wilson's Thrush (*H. fuscescens*). St. Louis—Transient. First seen on May 14, and were numerous on the 15th, 16th and 17th. On the 21st several were seen and they were the last.—Jefferson—Transient. First seen on May 7. May 12 the bulk of the birds were with us, but they were gone a very few days later, and only one was seen on the 21st, which I supposed was the last, but on the 24th they were as numerous as at any time this Spring. The last one seen was on May 30.

Gray-cheeked Thrush (*H. aliciae*). St. Louis—Transient. Last seen on May 22. Jefferson—transient. Only identified on May 24.

Olive-backed Thrush (*H. ustulata swainsoni*). St. Louis—Transient. First one seen on April 26 and no more until May 2 when the bulk arrived. On the 5th was the height of the migration. Were still present on the 10th, and from the 14th to 18th quite numerous. Last one seen on May 24. Jefferson—Transient. Have lost my record of the first one, but a second was seen on May 3. On the 12th I met with the tawny thrush quite often; about the height of the migration. During the next week the bulk departed, and on the 19th only three were seen. On the 24th they were as numerous as at any time this Spring. Last seen on May 31.

Hermit Thrush (*H. unalascae pallasi*). St. Louis—Transient. First seen on April 9, and from the 10th to the 12th was the height of the migration. Last seen on April 13. Jefferson—Transient. First one seen on April 4; another seen on the 5th, which I shot. One or more seen nearly every day until the 20th, when they began to be more common. On May 6 the bulk departed and the last one was seen on May 10.

Robin (*Merula migratoria*). St. Louis.—Summer sojourner. First seen on February 22 when there were about thirty in a flock in a wood. On March 4, several small flocks were seen at different places, but the bulk had not yet

come. On the 11th they were still scarce and first song was heard on the 8th. March 14, numbers were feeding on soft ground in company with blackbirds and flickers, and on the 16th were found on the prairie at their old stands and in two small flocks, but not numerous and noisy. April 3, at 9:20 p. m. the voices of wandering robins were distinctly heard flying over the city. Wherever I went on the 4th I found robins. Height of the transient visitation April 4 to 8. Jefferson.—Summer sojourner. First bird seen on March 1, and no more until the 14th, and then only two. On the 17th I saw the first flock, about thirteen. No migration of any kind from then until March 23, after which they very slowly increased. The only large flock seen this Spring was on April 6. The height of song and of numbers was on April 12, when single ones and pairs were seen everywhere; but two days later all the transients had apparently left. The first egg was found on April 27.

Mocking bird (*M. polyglottus*). St. Louis.—Summer resident. On New Year's day three were seen. April 16 I heard the first song, and on the 17th two more songsters. May 1. Ranks are filling up slowly as usual.—Jefferson. Does not occur here except as a straggler.

Catbird (*G. carolinensis*). St. Louis.—Summer sojourner. First one seen on April 18, which was in high plumage, but silent. April 22. A slight increase and singing a little. April 29. Still comparatively quiet and scarce. May 1. Still scarce. A morning's walk reveals less than half a dozen. May 2. The bulk of the birds arrived to-day and many migrating flocks and many more came during the following night. May 14. Found the first set of eggs, and on the 16th many diligent and conspicuous songsters. Jefferson.—Summer sojourner. May 6 first saw three, nearly three weeks behind time. On the 7th they had increased greatly; probably twenty per cent. are here, and they are very noisy. May 10. The bulk of the birds. May 12 to 19. Height of the migration.

Brown Thrush (*H. rufus*). St. Louis.—Summer sojourner. First seen on April 5. Bulk on the 9th and the height of the migration from 9th to 16th. Jefferson.—Summer sojourner. First seen on April 25. For some reason this immediate vicinity is disliked and shunned by this species. After the first one, which was seen again the next day, no more were seen until May 3 and 4, one on each day; and on the 6th five more were seen. This last date might be called the height of the migration for this place, as at no other time have I seen more than three a day and two-thirds of the time none at all, though in the woods all day long.

Bluebird (*S. sialis*). St. Louis.—Summer resident. In January these were first seen but only single birds, no flocks. February 13. Birds are mating, and up to the 24th were a great many arrivals; about half the birds seem to be back, being in pairs or pairing. March 4. The bluebirds were the chief birds of the past week. They were seen and heard everywhere; the males doing most of the warbling; the females most of the fighting. I caught two females in my hands, which had come down to the ground in combat. Jefferson.—Summer sojourner. On March 11 four were seen for the first time, slowly increased from that date on. Some were paired when they arrived, the rest mated as soon as they came. March 17. They began to be quite common, but the cold put a stop to all migration until the 23d, after which they have been quite numerous. April 9. They are now to be

seen and heard everywhere in pairs, there being no flocks at all. I have not seen more than four birds together any time during this Spring.

Blue-gray Gnat-catcher (*P. carulea*). St. Louis—Summer sojourner. First seen on April 9. Bulk came on the 14th. April 17.—Pairs continually seen in the woods, and singing. Jefferson.—Does not occur.

Ruby-crowned Kinglet. (*R. calendula*) St. Louis.—Transient. First seen on April 4. Height of the migration from the 4th to 12th. April 17 only two seen. April 27.—Still present. May 1.—One pair seen, and on the 3d the last bird. Jefferson.—Transient. On April 11 first saw a flock of seven, of which three were singing, and exactly imitating the song of the Winter wren. April 13.—Height of the migration, and on the 14th or 15th the bulk departed. On April 28 I visited a tamarac swamp, three miles from here, where I found the ruby-crowns in their glory. The swamp was full of them. I counted twenty-three in front of me at one time, and the rest of the swamp seemed to be just as full of them. As this was only one of many such swamps within a mile, their united number must have been very great. All were in song, and very active. April 26 the first female was seen, and from then on the number without the red crests increased very rapidly, until on May 3, though still quite numerous, not more than ten per cent. had a red crown, and the next day, out of eighteen or twenty, not one had an ornamental top-knot. At 11 p. m. on May 5, one came to my window and tried to get in, acting as if attracted by the light, or frightened by the thunder and lightning of the approaching storm. May 7.—Nearly all gone; saw only seven. May 12.—About one-fourth as many in tamaracs as on the 5th. May 21.—Last regular visitor seen, though a straggler was seen on the 28th.

Golden-crowned Kinglet (*R. satrapa*) St. Louis.—Winter visitant and transient. January 6.—Two pairs were seen in different places, and no more were seen until March 1, when two pairs were found in the same places. April 4.—First of transients, and on the 10th the last. Jefferson.—Transient. April 4.—Five first seen in one piece of woods. On the 9th they were more numerous, and on the 10th migration was at its height, to every mile I traveled there averaged eight birds. On April 12 the bulk of the birds departed, and from the 14th to the 26th I occasionally saw one or two at a time. The last was seen on April 26.

Tufted Titmouse (*L. bicolor*) St. Louis—Resident. January 1 they were too numerous to count, generally in family groups of six or eight birds, and conspicuous in every grove. It is a true resident. Jefferson.—Does not occur.

Black-capped Chickadee (*P. atricapillus*). Resident at both St. Louis and Jefferson.

White-bellied Nuthatch (*S. carolinensis*). Resident at both St. Louis and Jefferson.

Red-bellied Nuthatch (*S. canadensis*). Not noticed at either St. Louis or Jefferson.

Brown Creeper (*C. familiaris rufa*). St. Louis—Transient, and occasional Winter visitant. On January 6 one bird was seen, and no more until February 19, when a second was seen in a cemetery, and also on March 1 and 16. On April 4 the bulk of the birds were seen, and from the fifth to the ninth was the height of the migration. The last one was seen on April 9.

Jefferson—Transient. On April 4 the first two were seen. The bulk of the birds departed about April 11. The last one was seen April 15.

Carolina Wren (*T. ludovicianus*). St. Louis.—A true resident. On sunny days its call is often heard ringing through the woods. April 15 they had nests or were building. Jefferson.—Does not occur.

Bewick's Wren (*T. bewicki*). St. Louis.—Summer sojourner. First seen on April 5, and on the 17th they were in full numbers and very noisy. Jefferson.—Not seen.

House Wren (*T. ædon*). St. Louis.—Summer sojourner. I saw several for the first time on April 17 and again on the next day. April 22 showed an increase, and by the 29th they were industrious songsters and mating. Jefferson.—Summer sojourner. I first saw one on May 2, when it was singing with spirit and perseverance. It was joined two days later by another, and on the 6th two more came, and on the 7th still more, but yet very few. On the 10th they were still increasing slowly, and by the 12th no more came, and the Summer number was here. Not more than ten pairs about town.

Winter Wren (*A. troglodytes hyemalis*). St. Louis.—Transient. Once seen on April 3. Jefferson.—Transient. First one seen in a marshy wood on April 4, and on the 28th three more were seen. May 12.—One was seen in the tamarac, and was probably very near the last.

Long-billed Marsh Wren (*T. palustris*). St. Louis.—Not seen. Jefferson.—Summer sojourner. First seen on May 21, but it may have come sooner, as it occurs only locally and must be sought.

Short-billed Marsh Wren (*C. stellaris*). St. Louis.—First one seen on May 16. Jefferson.—Undoubtedly occurs like the preceding, but was not seen.

Black and White Creeper (*M. varia*). St. Louis.—Summer sojourner. First one seen in migration on April 29. May 3.—Singing at their old stands. Jefferson.—Summer sojourner. May 3.—I first saw five at as many different places, but not singing. On the 5th single ones would be seen every few minutes, and on the 6th six or eight were seen. May 12.—Migration was at its height, and no apparent change after this.

Prothonotary Warbler (*P. citrea*). St. Louis.—Summer sojourner. On April 20 I first found six at old stands and in song, and on May 2 they were mating. Jefferson.—Not seen; probably does not occur.

Worm-eating Warbler (*H. vermivorus*). St. Louis.—Summer sojourner. Breeding-place not visited until May 22, when a nest with incubated eggs was found by Mr. H. K. Coale, and female shot. Jefferson.—Does not occur.

Blue-winged Yellow Warbler (*H. pinus*). St. Louis.—Summer sojourner. First saw few in song on April 17. May 3, height of migration.—Jefferson.—Probably seen twice, but not certainly identified.

Golden-winged Warbler (*H. chrysoptera*). St. Louis.—Summer sojourner. On May 2 I first saw a fine male in song, and on the 14th and 15th four birds, both male and female. Jefferson.—Probably occurs, but not seen.

Nashville Warbler (*H. ruficapilla*). St. Louis.—Transient. May 2.—First saw a fine male in song, and on the 3d six were seen, and these were the last.—Jefferson.—Transient. On May 10, first saw two males and saw only five up to May 12. No more seen until on May 22, a party of six or eight. May 26.—Last one seen.

Orange-crowned Warbler (*H. celata*). Undoubtedly a few pass through

each place in the Spring, but none were seen at either St. Louis or Jefferson.

Tennessee Warbler (*H. peregrina*). St. Louis—Transient. First seen on April 25, and again on the 27th, a single individual in song. On May 2 numbers were seen and heard, and on the 3d was the height of the migration, which continued up to the 10th, and they were still numerous up to May 18. Last one was seen on May 24. Jefferson—Transient. First one seen May 17. May 19.—No males seen yet this year; females three times. May 22.—First saw six or eight single males, and they were the last seen.

Blue Yellow-backed Warbler. (*P. americana*). St. Louis—Summer sojourner. On April 17 first saw several in song. Jefferson—Summer sojourner. First saw one or two in heavy timber on May 4, and on the 12th only a few were here, after which none were seen.

Cape May Warbler (*P. tigrina*). St. Louis—Transient. On May 2 first saw a fine male in song. Jefferson—Not seen.

Summer Yellow Bird (*D. aestiva*). St. Louis—Summer sojourner. First saw three on April 18, singing at old stands, and by the 19th many were in song. On the 22d of April there was a decided increase, and by the 29th they were mating, and were industrious songsters. May 1.—Numbers of singing males are here, and probably many individuals in transit among them. This species has not yet attained that state of excitement which is incident to mating when the females arrive in bulk. May 5.—Their numbers have decreased owing to the departure of the transients. On the 17th nests were found. Jefferson—Summer sojourner. On May 7 first saw about a dozen males in as many places, and very noisy. May 8.—More numerous, and on the 17th was the height of the migration. May 19.—Full Summer numbers; nesting.

Black-throated Blue Warbler (*D. caerulescens*). St. Louis—Transient. Never seen in Spring, but once seen in Fall. Jefferson—Transient. On May 3 I first saw a beautiful specimen in the evergreens in my yard. It was not molested, and remained around for five or six days, and became quite unmindful of our presence. This was the first and only one seen until May 10, and on the 12th, although they were not numerous, still it was about the height. May 15.—Two were seen, and on the 17th the last one.

Yellow-rumped Warbler (*D. coronata*). St. Louis—Winter and transient visitor. On January 1 two flocks were seen ten and twenty-two birds respectively, most of which did not stay through the Winter, though a few did. On February 19, in an old graveyard, which has a fine growth of several kinds of evergreens, I found a flock of fifteen, which had probably spent the hardest part of the Winter there; their characteristic, loud "cheek" was continually heard. In the wood, which was populated by a flock on December 28, only one was found on February 22, but the chief attraction for them, the berries of the poison ivy, and which at the former date were quite abundant, were at the latter date all gone. The first of the transients came March 22, and the night of April 8 brought clouds of them. April 13 and 14 migration was at its height, and on the 17th but few were seen. April 18.—About thirty were found in four places. April 21.—Very numerous; in large flocks on the Illinois side of the Mississippi, and the same on April 29. On May 2 the bulk departed, and on the 5th the last one was seen. Jefferson—Transient. On April 11, as usual, this was the first warbler seen, and, strange to

say, it was a female. No more were seen until April 25, when there appeared three males in high plumage, and no more until May 2, when a flock of five were seen in the city. Previous to May 2 yellow rumps and pine creeping warblers were the only warblers seen, and only nine individuals in all, while at the same date they appeared at St. Louis. The night of May 1 marked the first wave of warblers, and on the 3d I found a flock of about twenty-five yellow rumps, both male and female, and in loud song. May 4.—Yellow rumps are at this date the most numerous of the warblers; about twenty-five to thirty in twos and threes. About four-fifths were males in full plumage. May 5.—None were seen, but on the 6th about eighteen. May 7.—Males of last year are here; most old males have gone. May 12.—Bulk departed, and on the 17th the last one was seen.

Black and Yellow Warbler (*D. maculosa*). St. Louis—Transient. First seen on May 3, when they were numerous and singing, and on the 10th they were still here. May 14 to 17. Both males and females were numerous, and on the 21st the last one was seen. Jefferson—Transient. First saw three males on May 10, and on the 12th the bulk of the birds were here and the migration was at its height; they were the most numerous warbler of this date. May 20—Two were seen, and on the 28th the last one.

Cerulean Warbler (*D. cerulea*). St. Louis—Summer sojourner. First seen on April 17. Jefferson—Not seen.

Chestnut-sided Warbler (*D. pennsylvanica*). St. Louis—Transient. On April 27 first saw an old male in song, and again on May 2 and May 10. May 11, 14 and 15, both males and females were numerous. On May 21 I found a female singing! May 24—Last one seen. Jefferson—Summer sojourner. On May 7 first saw three or four in a miscellaneous flock of warblers. May 12—Not quite the bulk of the species, but on the 17th there was the bulk of the females, and the height of the migration. May 19—Bulk departed; but six or eight seen, all males. Only a few remain to nest, I think about four to six pairs in the same number of square miles about here. One nest was found, and the birds seen through the whole month of June.

Bay-breasted Warbler (*D. castanea*). St. Louis.—Transient. On May 3 first saw a male, which was silent. May 21—Last seen of both male and female. Jefferson—Not seen.

Black-poll Warbler (*D. striata*). St. Louis—Transient. On May 2 first saw one male and heard several. On May 3 the first female was seen and many males were singing after 11 a. m. May 10.—Still here, and from the 15th to the 18th both male and female were numerous. May 24.—Last one seen. Jefferson—Transient. On May 10 first saw one male. 17th, the bulk was here. May 19. None seen. May 21.—First female, which was the last of the species seen.

Blackburnian Warbler (*D. blackburniæ*). St. Louis.—Not seen. Jefferson—Transient. First saw two males on May 10, and on the 12th was the height of the migration, though there were very few. May 16.—One was seen, and on the 17th the last one.

Yellow-throated Warbler (*D. dominica*). St. Louis—Summer sojourner. First seen April 12. On April 18 three males were seen on high trees, and on the 19th many were in song. Jefferson—Does not occur.

Black-throated Green Warbler (*D. virens*). St. Louis. Not seen. Jeffer-

son—Transient. On May 5 first saw one male. May 12.—No males seen, but several females; only two males seen this Spring. May 19.—None seen, and last one probably left about that time.

Pine-creeping Warbler (*D. pinus*). St. Louis—On April 21 first saw one male among yellow-rumps and red-polls. Jefferson. On April 24, at six p. m. I shot a male, which had been very lively in the top of an oak; its stomach was full of insects and it was quite fat. Saw no more until May 3, when there came a large flock of about fifty or sixty, both male and female. They showed their creeping habits very plainly, but sometimes flew to the ground among the red-polls. They were the most numerous warblers of this date, and were the last that I certainly identified, though think I saw some young birds or females on May 19, which is about the time the last of the migrants should be seen. So far as I know they are transient, though generally supposed to breed as far south as this.

Red-poll warbler (*D. palmarum*). St. Louis—Transient. On April 13 first saw one bird among some yellow-rumps. April 19.—Many in song, and on the 20th they were still more numerous, and on the 21st about equal in number to the yellow-rumps, with which they frequented the willow thickets and watercourses. On April 29 they were still numerous, but by May 2 the bulk had departed and only a few were seen. May 5.—Last one was seen. Jefferson—Transient. On May 3 first saw about forty males and females; silent and continually on the ground as usual. May 4.—Saw about six parties of from three to five each, and on the 5th three or four more groups of twenty or twenty-five birds in all. May 7.—About the same, with a slight decrease, if anything. May 10.—Two seen, which were the last.

Prairie Warbler (*D. discolor*). St. Louis—Summer sojourner (local). First seen on May 22, when I, for the first time, visited their breeding grounds, which are about ten miles from the city limits. Jefferson—Does not occur.

Golden-crowned Thrush (*S. auricapillus*). St. Louis—Summer sojourner. First seen on April 17, when they were numerous; old males in full numbers and noisy until 10 a. m. May 15—Three eggs. Jefferson—Summer sojourner. On April 28 I found the first ones in a tamarac swamp; they were in full song. First seen in hardwood timber were three on May 3, and no more until the 11th, and then only one. May 12—Numerous and about the bulk. On May 19 they were as numerous as at any time, and continued the same thereafter.

Small-billed Water Thrush (*S. naevius*). St. Louis—Transient. On April 21 first saw one male in a slough; it was silent. May 2—Had increased, and it was about the height of the migration; they were in song. May 5—The height still continued and was present up to the 10th. May 14 to 17—Still numerous, but the last was seen on the 21st. Jefferson—Summer sojourner. First one seen on May 2. The bulk of the birds were here on the 12th, and the height of the migration was on the 19th.

Large-billed Water Thrush (*S. motacilla*). St. Louis—Summer sojourner. First seen on April 9. May 15—I found young in nest. Jefferson—May occur, but not seen.

Connecticut Warbler (*O. agilis*). St. Louis—Transient. First saw one bird on May 14 and again on the 18th. Last one seen on May 24. Jefferson—

Transient. First saw one male on May 26 and a second on the 27th, and twice thereafter. Last seen on May 29.

Kentucky Warbler (*O. formosa*). St. Louis—Summer sojourner. First seen on May 2, and the bulk of the birds were here on May 3. Jefferson—not seen.

Mourning Warbler (*G. philadelphia*). St. Louis—Transient. On May 16 first saw one bird. Jefferson—Summer sojourner. On May 19 first saw one male, and another on the 21st.—May 25—Twice seen. June 1—Has been seen about a dozen times this Spring.

Maryland Yellow-throat (*G. trichas*). St. Louis—Summer sojourner. On April 17 I heard five males for the first time. April 18—Saw sixteen males, which were noisy until 8 a. m. May 1—Numbers of singing males were here, but probably many individuals in transit among them. On May 5 their numbers were decreased by the departure of the transients. Jefferson—Summer sojourner. On May 12 first saw one male, and again on the 16th and 21st. No more than three seen in any one day this Spring.

Yellow-breasted Chat (*I. virens*). St. Louis—Summer sojourner. On April 23 first saw this species, and both saw and heard it every day thereafter. April 26—About one-fourth are present now, both male and female, and on the 29th were still quite scarce. May 2 and 3—The bulk of the birds were here. Jefferson—Summer sojourner. On May 19 first saw one male, which I shot; a second was seen on the 21st, and was twice heard later in the season.

Hooded Warbler (*M. mitratus*). St. Louis—Summer sojourner. First seen, one in song on April 17. On May 2 they were mating. Jefferson—Not seen and probably does not occur.

Black-capped Yellow Warbler (*M. pusillus*). St. Louis—Transient. First saw one male on May 9, and again on the 10th, one male. May 11, 14 to 18. They were numerous, both male and female. May 21.—Last one was seen. Jefferson—Transient. On May 12 but one was seen, and it was skulking in some windfalls. No more until May 20, when the first flock was seen. Several were seen on May 21 and again on the 23d. May 29.—Last one seen.

Canadian Fly-catching Warbler (*M. canadensis*). St. Louis—Transient. First seen on May 14, when they were numerous, also on the 15th and 16th. May 24.—Last one seen. Jefferson—Transient. First one seen on May 26 and again on the 27th, 28th and 29th, which was also the last one.

Redstart (*S. ruticilla*). St. Louis—Summer sojourner. First saw one in song on April 17, and on the 29th it was very conspicuous in the woods, both old males and females; no young males yet. May 2.—Dozens were met with, and first males of last year, but by the 5th they were decreased by the departure of the transients. Nest found on May 17. Jefferson—Summer sojourner. On May 10 first saw five males and two females. On the 12th the bulk of the birds were here, but it was not the height of the migration; both males and females, about six of the former to one of the latter. May 17.—The bulk of the females were here, and it was the height of the migration for the species. May 19.—As numerous as all the other warblers together; mated, mating and nesting; everywhere in the woods. Saw between two and three hundred, both male and female, in about even numbers. May 22.—Bulk of the transients departed.

Red-eyed Vireo (*V. olivacea*). St. Louis—Summer sojourner. On April 25 first saw a single individual in song, and again on the 27th. May 2 and 3.—The bulk of the birds were here. Jefferson—Summer sojourner. On May 19 first saw several, but probably came several days previous. About the height of the migration after May 25.

Philadelphia Vireo (*V. Philadelphia*). St. Louis—Transient. First seen on May 21, and the last on May 22. Jefferson—Not seen.

Warbling Vireo (*V. gilva*). St. Louis—Summer sojourner. On April 18 first saw two singing at old stands. April 22.—Have increased and are regularly heard, and by the 29th they were mating, and were industrious songsters. May 1—Height of the migration. Jefferson.—Summer sojourner. Was the first vireo of the season, and came on May 5, when four single ones were seen at as many widely separated places; all in full song. May 6.—Quite an increase; heard in about a dozen places, and on the 7th they were much the same with a few additions. May 12.—The height of the season; forty to fifty seen during the day. May 19.—The height still continued with much song.

Yellow-throated Vireo (*L. flavifrons*). St. Louis—Summer sojourner. First seen on April 17; in song. May 1.—Height of the season. Jefferson—Summer sojourner. First saw one on May 10. May 12.—Height of the season, but the bulk departed during the next week. Saw one on May 19, and another on the 23d, which was the last one noted, though it probably breeds in favorable localities.

Blue-headed Vireo (*L. solitarius*). St. Louis—Transient. First saw one on May 5, which was silent, and again on the 11th, one bird. Jefferson—Summer sojourner. First saw five on May 10, also on the 12th, a few, and on the 19th, three or four.

White-eyed Vireo (*V. noveboracensis*). St. Louis—Summer sojourner. On April 14 first saw one bird at old stands, and on the 17th, several. May 1.—Only about one-half regular number here; but on the 3d they were in full numbers, and on the 15th a nest containing four fresh eggs was found. Jefferson.—Certainly occurs, but not identified.

Bell's Vireo (*V. belli*). St. Louis—Summer sojourner. First seen on April 25, and not again until after May 1. On May 5 they had increased, and on the 11th the males were singing about seventeen times a minute. May 15.—Full numbers. Jefferson—Probably does not occur.

Loggerhead Shrike (*L. ludovicianus*). St. Louis—Summer resident. None seen between December 30 and February 23. March 14.—A migrating shrike was seen to fly north at 11 a. m., going in a straight line as far as my glass could reach him. It is seldom that we see small birds on their way migrating. On April 15 I found a nest, and on May 26 fledged young. Jefferson—Summer resident. Twice seen during the Winter, and at one time I saw it catch and kill an English sparrow.

Cedar Wax-wing (*A. cedrorum*). St. Louis—Summer resident. First seen on April 9 and 12, in flocks. Jefferson—Summer sojourner. On May 10 first saw a flock of about twenty. Strange they should not have come earlier. May 17.—A second flock was seen, and by the 19th they had become more common, one or more flocks being seen every day. May 21.—First arrivals have passed on, and no more have come to take their place.

Purple Martin (*P. subis*). St. Louis—Summer sojourner. First saw four at 2 p. m. on March 18. In the evening of April 3 the first martins came back again; none had been seen since March 18. April 29.—They have steadily increased, and the birds of last year have begun to arrive. The bulk came day before yesterday, but it is not yet the height of the season. May 1.—Not yet the height of the season. June 16.—Twenty-two pairs have taken boxes in my yard, and one old pair is already feeding young, while the birds of last year continued to arrive, mate and build until June 4. Their arrival this year, not counting the scouts of March 18, may be said to cover a period of two months from April 3 to first week in June. Jefferson—Summer sojourner. First seen on April 8, after which they steadily increased, and about April 27 were in full numbers.

Cliff Swallow (*P. lunifrons*). St. Louis—Summer sojourner. First seen on April 14, and by the 29th had increased, but were not in full numbers. May 1.—About one-fourth here. May 3.—Bulk at colonies. Jefferson—Summer sojourner. First saw one on April 4, but no more until the 24th when a second one appeared. April 28.—For the first time are common, and the bulk of the species is here. By May 7 most of the migrants had left and they were in about Summer numbers.

Barn Swallow (*H. erythrogastra*). St. Louis—Summer sojourner. First seen on April 14. Jefferson—Summer sojourner. First saw one on April 27 and on May 9, though more had arrived, they were still quite scarce. In the evening of May 11 the bulk arrived, but it was not yet the height of the season. May 19.—In full Summer numbers, but not very common here; probably about ten or twelve pairs in the square mile upon which the town is situated.

White-bellied Swallow (*T. bicolor*). St. Louis—Summer sojourner. The first I saw was a migrating party on April 26. Jefferson—Summer sojourner. On April 14 first saw three flying and circling over the Rock River at 3 p. m.; did not see any in the early part of the day, although I was out all the forenoon. By April 7 four more had come, and on the 9th they were still more numerous. The height of the season was about April 26. May 8.—Have nearly all gone in the last two days. May 8.—Quite a large flock arrived last night. June 1.—They were seen every day.

Bank Swallow (*O. riparia*). St. Louis—Summer sojourner. On April 21 first saw a party of seven going north along shore. May 1.—Have seen none since. May 3.—Bulk at colonies. Jefferson—Summer sojourner. On May 5 first saw three. May 7.—About three-tenths are here.

Rough-winged Swallow (*S. serripennis*). St. Louis—Summer sojourner. First seen on April 3 and again on the 17th in pairs, at stands. Jefferson—Not identified.

Scarlet Tanager (*P. rubra*). St. Louis—Summer sojourner. On April 27 saw one male at old stand and again on May 2. On May 3 I found one female and three males at usual stands, in song. Jefferson—Summer sojourner. First saw one male on May 11 and again on the 12th. They about doubled in numbers during the night of May 16, and the first female was seen on the 19th, when the males also were a little more numerous. June 1.—Young males have come, but no building yet.

Summer Red-bird (*P. aestiva*). St. Louis—Summer sojourner. On April 26 first saw one male at old stand. Jefferson—Does not occur.

Evening grosbeak (*H. vespertina*). St. Louis—Not seen. Jefferson—Winter visitant. On March 1 I killed a male and female, the first I ever saw in Wisconsin, during twelve years of hunting.

Purple Finch (*C. purpureus*). St. Louis—Winter visitant. From January 24 to February 14, very numerous. February 24—Have been very scarce, only two seen. March 2—Two at an old stand (one in brown); singing. March 11—Almost all gone, but on the 13th there were several new arrivals in three places. On March 16 I found them in small parties in five places and all singing beautifully, something like the warbling vireo, and on the 17th they were still numerous and in song. April 3 to 7—The height of the season, but on the 8th the bulk departed. April 17—Still present, but silent, on high trees and in plain dress. On April 18 I saw four small parties in song, and the last one was seen on April 25. Jefferson—Transient. On April 1 first saw one male in fine plumage. Singing, but not in full melody. On April 4 I saw the first flock—three males and two females. April 11—Saw two males and one female; no more until April 28, when five males and two females were seen. May 2—A flock of twenty; was met in the height of their wedding attire; six or eight much duller and the rest with no "purple." May 6—Bulk departed and last one seen.

White-winged Cross-bill (*L. leucoptera*). St. Louis—Not seen. Jefferson—Winter visitant. On April 3 first saw a single female in my yard eating apple seeds.

Common Red-poll (*Æ. linaria*). St. Louis—Winter visitant. Saw a flock of thirty to thirty-six on February 12. Jefferson—Winter visitant, though chiefly transient. Occasionally seen during the Winter, but most of them left during the cold time in January. The first flocks came back again March 14, and the last was seen March 24.

American Goldfinch (*A. tristis*). St. Louis—Summer resident. A few were seen on January 1, but by February 3 it was too cold for them and they almost all left. February 12—In a nine miles' walk saw only two birds, while in the same places four flocks were seen on January 29. March 16—Are beginning to come back, and were found in four places; a few birds only and in plain dress. A song once heard. On April 15 they were still scarce, and on the 18th single calls were heard in six places. April 20—More conspicuous, and on the 21st was seen a flock of about twenty with the males in full Summer dress. On April 29 they had begun to be quite numerous, and by May 1 were everywhere and could be found in large flocks on high trees over the water. Such companies make so much noise that the song of other birds is drowned. They are much like blackbirds; all the voices stop suddenly for a moment. May 11—Height continues, but by the 15th they had decreased. Jefferson—Summer sojourner. May 10—First arrived in flocks; thirty to forty birds seen. May 12—Not quite the bulk. May 19—Numerous, but not the height; heard almost constantly and still in flocks.

Pine Goldfinch (*C. pinus*). St. Louis—Winter visitant. One bird seen on January 18. Jefferson—Winter visitant, transient and possibly Summer sojourner. A small flock remained about the apple trees in my yard nearly all Winter; in early Spring they slightly increased, and were very tame, allowing us to pass within five or six feet of them. They spent the most of their time upon the ground under the pines. They gradually disappeared,

and the last one was noted on April 5. However, on May 19 I shot a male of this species, and in the latter part of May small flocks were again seen, and all through the month of June they were quite common.

Snow Bunting (*P. nivalis*). St. Louis—Not seen. Jefferson—Winter visitant. Seen only twice last winter.

Lapland longspur (*C. lapponicus*). St. Louis—Winter visitant. On January 6 I saw a flock of thousands; none others seen. Jefferson—Not seen.

Savanna Sparrow (*P. sandwichensis savanna*). St. Louis—Transient. First seen on April 23 and not met with again. May 2.—Are strangely missing. Jefferson—Summer sojourner. On May 17 first saw one pair, which probably came several days before. They were heard again on May 19, and these were the only times they were noted this year.

Grass Finch (*P. gramineus*). St. Louis—Transient. First seen on April 12. Jefferson—Summer sojourner. On April 12 first saw about forty, all of which came during the previous night. They are full of song; mating and fighting. April 14—Only half a dozen seen. Not much change from this date until May 5, on which day quite an increase was apparent, and on the 6th they were in about Summer numbers. They are not very common for the species.

Yellow-winged Sparrow (*C. passerinus*). St. Louis—Summer sojourner. On April 26 first saw several at old stands and others on April 27. Jefferson—Not seen.

Lark Finch (*C. grammica*). St. Louis—Summer sojourner. First seen on April 3, and by the 29th was one of the prominent songsters of the roadside. Jefferson—Summer sojourner. On April 27 first saw two pairs. May 12—They are quite scarce, having been seen only six or eight times this Spring.

White-crowned Sparrow (*Z. leucophrys*). St. Louis—Winter and transient visitor. On January I saw single birds; the same number remained in the same places during December, January and February; probably were the same individuals. March 2—About a dozen among a flock of a hundred tree sparrows, all in song, and disposed to remain among the higher branches of the trees. March 16—Still few and no increase. By March 30 the small wintering parties had about doubled in number. First flock of transients were seen on April 14, and again on the 18th, three very noisy flocks. April 29—Often met with, but not in large flocks. Bulk departed on May 2, and the last was marked for May 5, nevertheless there were a few here on May 15 and 16. Jefferson—Transient. Probably seen on April 25, but not identified until later. May 5—Height of the season. They were not very plentiful this Spring, and the last was seen about May 10.

White-throated Sparrow (*Z. albicollis*). St. Louis—Winter and transient visitor. Occurred during the winter, and to April 1 in parties of six to ten in old stands. The night of April 8 brought us the grand army of Peabodys. On April 20 they were still numerous, and on the 21st very numerous, and continued quite numerous up to the 29th. May 2—The bulk departed, and on the 11th, 14th, and 16th there were a few young; none seen later except on May 24, one in adult dress, but in diseased condition, which accounted for its presence here. Jefferson—Transient. On March 24 first saw two, and were not seen again until April 23, when the first of the regular migrants came. By April 28 they had increased slightly, and by May 2 there was quite an increase, and the bulk of the species. In the evening I found more than a

hundred, with a few white-crowns, in a patch of thick brush. May 4—About same number, but more scattered, and in several new places. May 5—Height of the season; everywhere, in quite large flocks and small parties. Two hundred and fifty were seen in a five-mile walk; not very many white-crowns among them. May 6—Bulk departed. Only about one-tenth of yesterday's birds remain. By the 7th many more had left. In the three places where they had been most common only one bird was found, but a flock of eighteen or twenty was seen in a new place. May 12—Two were seen, and on the 14th the last one.

Tree Sparrow (*S. Montana*). St. Louis.—Winter visitant. These hold second place in numerical strength of Winter birds. During January and February they rather increased, but during the week ending with February 24 they somewhat diminished, probably by the withdrawal of the reinforcement which came the first of the month. In sunny places they begin to be musical about this date. On March 2 they were in very large flocks, especially in the lowlands on the Illinois side of the river; greatly outnumbering there the snow-birds, which are the more numerous on this side. March 11.—Have thinned out considerably. March 14.—Were found in several places, but not numerous. March 17.—Still with us, but few in numbers. April 7.—Last one seen. Jefferson.—A few are Winter visitants, but much the larger portion are transients. On March 24, first saw a flock of fifteen, which remained for nearly a month. On April 4 the bulk of the species were here, and on the 12th was the height of the season; about one hundred and fifty seen. Only two days later (the 14th) but four birds were found in a long walk. April 21.—One flock of ten or twelve was found in a thicket; none at the brush piles, where I have found them all the Spring. These were the last I saw.

Chipping Sparrow (*S. domestica*). St. Louis.—Summer sojourner. First seen on April 4. Bulk of the species here on April 9, and by the 15th they had commenced building. Jefferson.—Summer sojourner. On April 11 first saw six single males. April 12.—A few more came. Transients left about April 16, but another wave came on May 3, which made them again numerous.

Clay-colored Sparrow (*S. pallida*). Seen neither at St. Louis for Jefferson.

Field Sparrow (*S. pusilla*). St. Louis.—Summer sojourner. On March 13 first saw one male, in song, at the same place at which I found the first bird last year, twelve days earlier, on March 1. March 16.—Several old acquaintances have returned, and are sitting on the same trees as in former years. They are full of praise, if song means praise. March 17.—A few more—the bulk of the species. March 30.—The height of the migration. Jefferson.—Summer sojourner. First seen by me on April 25, but they probably came some time before. May 10.—Seen for the second time; seems to be quite uncommon about here.

Black Snowbird (*J. hyemalis*). St. Louis.—Winter visitant. Met with everywhere; it is the most numerous of our Winter birds. They increased during January and the first part of February, and then in the latter part of the same month the new arrivals seemed to leave us again. March 11.—Are decidedly less numerous, and what is more important, they are much less conspicuous than during the last month. They keep silent, and on the ground, even during the warm hours, and on disturbing them I was surprised at the large proportion of light-colored individuals among them. Judging from this and

from their different behavior, I think that many of the old birds, which were in fine plumage in February, have departed, leaving behind the young birds, which will remain with us three or four weeks longer. On March 14 they were found in several places, but not numerous. March 16—As numerous as ever, and in large flocks; many old birds among them. Again on the 17th large flocks were seen. On March 30 they were found collected in large flocks, and very much excited in spite of the cool rain, and in a place where twenty wintered, I found an army of two hundred, singing, chasing, etc. On April 4 the bulk of the species departed, and the last one was seen on April 12. Jefferson—Winter and transient visitor. The first single ones came from the north October 17, 1882, and the first flock—over a hundred—on October 20. By November 8 they had scattered into small parties of five to eight, and these nearly all left in December. Parties of from three to seven were seen on January 3, 8 and 31, and then only one bird until March 23, when one flock of from eighteen to twenty appeared. Small flocks were seen until April 2, they then suddenly increased, and the bulk came on April 4. I then saw about one hundred and fifty in a few acres. The same day (April 4) was about the height of the season, for large numbers, perhaps the bulk, left that night. On April 12 only three were seen, and I thought each day would take away the last one, but they stayed—though quiet and looking very disconsolate—until on April 28, when the last straggler departed.

Song Sparrow (*M. fasciata*). St. Louis—Winter visitant. Not many, but certain to find a few along the banks of creeks. Same conditions and numbers continued all through December, January, and February. On March 9 they were found in a very musical mood, but in same numbers. March 13—New arrivals observed, and on the 14th song was heard in many places. April 6—The height of the season. The bulk departed on April 8, and the last one was seen on April 9. Jefferson—Summer sojourner. First saw three on March 24, and during the week from March 25 to 31, seven were seen. April 4—Everywhere in twos and threes; forty to fifty seen. On April 12 was the height of the season; two hundred seen. April 14—Not one-tenth were left, but by the 21st they were more numerous, and in about Summer numbers.

Swamp Sparrow (*M. palustris*). St. Louis—Winter and transient visitor. On January 29 one bird was found in the same place as last Winter. March 2 and 8.—Three birds were seen, and on the 14th they were seen several times. The bulk arrived on April 4, and the height of the season was on the 9th. April 17.—Decreased; one party only, but on the 20th there were small parties in many places, and they were still numerous on May 2. May 5.—Last. May 14, 15 and 17.—Single young birds. Jefferson.—Summer sojourner. I saw the first one on April 28, but they probably came a week or more ago.

Lincoln's Finch (*M. lincolni*). St. Louis.—First seen on April 23. May 1.—They are strangely missing, but on the 14th and 16th I saw four birds. Jefferson.—Not seen.

Fox Sparrow (*P. iliaca*). St. Louis.—Transient. First saw two on February 20, and on March 11 a few additional individuals. March 14.—Found three at one place and several at another, all singing. On April 3 was the height of the season. April 5.—The bulk departed, and the last one was seen on April 7. Jefferson.—Transient. First saw twenty-four in two places

on April 4, at which time possibly the bulk of the species was here. Last seen on April 11.

Chewink (*P. erythrophthalmus*). St. Louis.—Summer resident and sojourner. Three birds seen on December 30, and they stayed through January and February, both male and female. On March 14th calls were heard in three places, and on March 16 saw only four males. The bulk of the species were here on April 5, and the height of the season was from April 9 to 15, and longer. On April 15 they commenced building. Jefferson.—Summer sojourner. First saw three males on April 21, and on the 25th were heard several males. May 3.—Not more than twenty seen so far this Spring, and no females. On May 10 a few females arrived, and by the 12th it was almost at the height of the season. May 17.—Bulk of the females arrived, and the height of the species. On May 19 the height was past and are building.

Cardinal Grosbeak (*C. virginianus*). St. Louis.—Summer resident. Was seen every day, single or in pairs. Jefferson.—Does not occur.

Rose-breasted Grosbeak (*Z. ludoviciana*). St. Louis.—Summer sojourner. On April 22 first saw two males in song at old stands. The bulk of the species was here from April 25 to 29, on the last of which dates they were the most conspicuous and noisy birds. The females have arrived, and old males are back in full numbers. Jefferson.—Summer sojourner. On May 6 first saw four; all males. May 7.—About one-tenth are here, and on May 8 they were somewhat more numerous. May 10.—Females arrived, but only a few. May 12.—About the height of the season for males, and on the 17th was the height for females. May 19.—About in full numbers, and most of them mated.

Indigo Bunting (*P. cyanea*). St. Louis.—Summer sojourner. First saw a flock of about eight males on April 21. This species and the next were together and in company with white-crowns feeding on ploughed ground, alongside a hedge, which borders a pond. May 1.—Are scarce, but have met with singing males once or twice each day. May 2.—Bulk of the species. First females and many males in song. May 3.—Wandering troops. Jefferson.—Summer sojourner. First saw one male on May 17, and again on the 19th several were seen, but no females. May 29.—First female.

Black-throated Bunting (*S. americana*). St. Louis.—Summer sojourner. On April 21 first saw a party of twenty singing males. April 29.—In small flocks, which dispersed during the morning hours of warm days; re-entering old stands. May 1.—The bulk of the species and they are now very conspicuous in the mornings, singing or flying singly, or in parties calling. Jefferson.—Occurs only as a rare straggler, but not seen.

Bobolink (*D. oryzivorus*). St. Louis.—Transient. On May 2, in the evening, great numbers were seen going north in five large flocks. May 3.—Two males were seen in company with redwings, and by the 5th they were present in large numbers, and from the 15th to the 17th I noted a flock of a hundred and fifty males and females. Last one was seen on May 21. Jefferson.—Summer sojourner. First saw one flying and singing on May 5 and on the 6th two more. May 7.—There was a slight increase; about a dozen seen, and on the 10th there was a still greater increase, but they were not yet common. The bulk arrived on May 12, and on the 19th was the height for males, though not for females. On May 26 the first females came and on June 1 they were thinking about building.

Cowbird (*M. ater*). St. Louis.—Summer sojourner. First seen on April 5, and the height of the season was on the 12th. Jefferson.—Summer sojourner. On April 21 first saw one flock of about forty males and females. The bulk of the species arrived on April 28, and on May 12 it was the height of the season; about five hundred seen. May 19.—Just about in Summer numbers.

Yellow-headed Black-bird (*X. icterocephalus*). St. Louis.—Rare visitor; not seen this year. Jefferson.—Not seen, but may occur locally, as I know it is a regular breeder at Green Lake, fifty miles north of here. At that lake, twelve years ago, I found only one pair, breeding at the south end the next year three pairs, and two years later they were quite numerous there, but nowhere else. The next year one pair moved to the north end of the lake, and this Summer on revisiting the place, I found them all around that lake and several neighboring ones.

Red and Buff-shouldered Blackbird (*A. phoeniceus*). St. Louis.—Summer sojourner. On March 3 first saw many small flocks in the swamp on the Illinois side of the river just opposite St. Louis, but none here yet. By March 11 they had spread a little more in small troops, mostly males, and on the 14th they were the most conspicuous birds in the lowlands. Vast numbers were in noisy flocks; mostly males. On March 17 large flocks went north above the river, and on April 4 the number here was very great. April 6.—Height of the season, which continued up to the 29th. Jefferson.—Summer sojourner. First saw nine on March 17 and on the 23d the first flock, which was the last until April 4, when, in the evening, two hundred and fifty went north. On April 9 very few seemed to have passed and a walk of half a dozen miles did not reveal as many flocks. On the 12th they were for the first time common, but there were no large flocks, but a good many scattering single ones, all males and all singing. April 21.—First females. April 28.—Height of the season.

Meadow Lark (*S. magna*). St. Louis.—Summer sojourner. First seen on March 3, when they were quite numerous and noisy in Illinois, opposite the city, but only once met with on this side of the river. By March 11 they were slowly taking up old stands, and on the 14th their song was heard on all sides, unusually numerous this year. Jefferson.—Summer sojourner. On March 23, first saw fifteen to twenty single males; no females until April 1, and no flocks at any time. All that were here on April 9 were mated.

Orchard Oriole (*I. spurius*). St. Louis.—Summer sojourner. On April 18 first saw one male, which was very dark, and on the 19th another one, singing. April 21.—First male of last year, and on the 22nd there was a slight increase. April 29.—It is becoming quite prominent; the first female and a few males of last year have arrived, but the species is not yet at its height. May 3.—Bulk of the species, and in wandering troops. Jefferson.—Should be here, but not seen.

Baltimore Oriole (*I. galbula*). St. Louis.—Summer sojourner. On April 19, first saw two, which were shy, and almost silent. April 20.—Two more, and on the 22nd a slight increase. April 29.—Bulk of the species, and they are to-day the most conspicuous and noisy birds. The females have arrived, and old males are back in full numbers. Jefferson.—Summer sojourner. First seen on May 6, and the next day about one-tenth were here. May 8.—Somewhat more common. On the 10th the females arrived, but only a few, and

the 12th was the height of the season for males, but not yet the bulk of the females. May 19.—The height of the season is past, but yet no signs of building.

Rusty Blackbird (*S. ferrugineus*). St. Louis—Transient. On December 28 first saw about thirty resting on a high tree. Not usually found here in Winter. On March 14 there was quite a number in small flocks in the lowlands. Last seen on April 13. Jefferson—Probably seen, but not certainly identified.

Purple Grackle (*Q. purpureus aeneus*). St. Louis—Summer sojourner. Saw four on January 18 and two more on the 29th. On March 14 the first of Summer sojourners came; a very few among the other blackbirds in the lowlands. March 16—First seen in Missouri. On April 15 they were mating but still going to the common roosting place. April 22—At this date they were carrying building material. Jefferson—Summer sojourner. First saw one on March 25. March 31—Seen seven times this Spring, ten birds in all. In the afternoon of April 4 I saw the first flock, numbering eleven, and later another flock migrating. On April 9 they began building in my yard. April 21—Two small flocks were seen, but not yet mated.

Common Crow (*C. frugivorus*). St. Louis—Resident. Roosting by thousands in Winter among the willows opposite St. Louis. On March 14 only a few were seen in the lowlands, where they had been very numerous two weeks before. Jefferson—Winter sojourner. About half a dozen wintered with us and were seen every few days. A few more passed through in early Spring, but no larger flock than a dozen was seen at any time. Two full sets were found on April 7.

Blue Jay (*C. cristata*). St. Louis—Resident. Generally found in troops of from five to seven. On April 27 twenty were seen in a flock on wing and again on May 1. Jefferson—Resident

Shore Lark (*E. alpestris*). St. Louis—Resident. On February 24 they were the most conspicuous of our birds; mating and singing. They are often seen now in the air, singly, with a hovering flight, as if uncertain what direction to take, and making an inquiring call as if in search of somebody. They rise to a height of several hundred feet, drift slowly along for a mile or so and then after a few minutes return to the very spot they had left. Jefferson—Usually Summer sojourner and sometimes a Winter sojourner in small numbers. The first for 1883 came on February 24. By April 4 all migrants had left.

Kingbird (*T. Carolinensis*). St. Louis.—Summer sojourner. First saw a silent one on April 18—a beautiful bird—and on April 20 a second one was seen. April 29.—Begins to be conspicuous, and by May 1 it was increasing slowly. Jefferson—Summer sojourner. On May 6 first saw only one, and on the 7th three more, but silent. May 10.—Bulk of the species and almost the height of the season—a great increase. May 12.—Height of the season. By the 19th the height had passed.

Great-crested Fly-catcher (*M. crinitus*). St. Louis.—Summer sojourner. First saw two on April 17; they were silent. On April 20 the bulk of the species came; noisy Jefferson.—Summer sojourner. First saw one on May 12, and on the 19th one more. Only about a dozen seen during the whole Summer.

Phoebe Bird (*S. Fuscus*). St. Louis.—Summer sojourner. First saw a pair

on March 16, and on the 17th two more. A nest was found on April 9. Jefferson.—Summer sojourner. On April 4 first saw three, and on the 9th about three or four to the mile. April 10.—Quite common; on the 11th there was no increase, but a few more on the 12th.

Olive-sided Flycatcher (*C. borealis*). St. Louis.—Transient. First seen on May 22, and last on the 24th. Jefferson.—Not seen.

Wood Pewee (*C. virens*). St. Louis.—Summer sojourner. On May 5 first saw several; calling. Jefferson.—Summer sojourner. On May 26 was the first I saw, though I think it came long ago.

Yellow-bellied Flycatcher (*E. flaviventris*). St. Louis.—Transient. On May 14 first saw one bird and again on May 16. Seen also on May 21 and 24. Last on May 26. Jefferson.—Transient. First saw one male on May 19.—Last one on May 28.

Acadian Flycatcher (*E. Acadicus*). St. Louis.—Summer sojourner. On May 3 many more were seen at old stands. Jefferson.—Not seen.

Traill's Flycatcher (*E. pusillus trailli*). St. Louis.—Summer sojourner. First saw several, and heard them calling on May 5. Jefferson.—Not seen.

Least Flycatcher (*E. minimus*). St. Louis.—Transient. On May 5 first saw one male, which was calling. From May 14 to 18 they were numerous. Jefferson.—Summer sojourner. First saw one on May 7, and on the 8th it was seen several times. May 10.—Nearly full numbers, and on the 12th was the height. They are present everywhere and have seemed to increase regularly from the first. May 19.—Still the height; over a hundred seen. June 1.—Still decidedly numerous.

Ruby-throated Humming bird (*T. Colubris*). St. Louis.—Summer sojourner. First saw one male on May 11, and on the 14th the first female. May 18.—Mating. Jefferson.—Summer sojourner. First saw one male on May 15. May 19.—Three seen and two shot with No. 10 shot; not a feather injured. June 1.—Height of the season.

Chimney Swift (*C. pelagica*). St. Louis.—Summer sojourner. First seen on April 8. By the 14th they had increased, and on the 18th the bulk of the species was here. Jefferson.—Summer sojourner. On May 1 first saw six, which came in the afternoon, and took immediate possession of my chimney. May 4.—First flocks have almost gone; only three or four birds are circling over the city to-day. May 9.—Flock of seventeen seen, apparently migrants. In the afternoon there were many more and the height of the season. May 12.—Migrants have about all gone.

Whip-poor-will (*C. vociferus*). St. Louis.—Summer sojourner. First seen on May 23, but probably came before. Jefferson.—Summer sojourner. On May 19 first saw one pair, and none heard or seen thereafter.

Night Hawk (*C. popetue*). St. Louis.—Summer sojourner. First seen on May 15, and also on the 16th and 18th, when there were a great many going north; numerous along the border of wood. Jefferson.—Summer sojourner. First saw one on May 21, and on the 31st I found fresh eggs.

Hairy Woodpecker (*P. villosus*). Resident at both places.

Downy Woodpecker (*P. pubescens*). Resident at both places.

Yellow-bellied Woodpecker (*S. varius*). St. Louis.—Transient usually. On December 28 saw one in the woods, but no more seen during the remainder of the Winter. The first this Spring were four birds, with no adult male

among them, seen on February 22. March 11.—Still the same at this date, and on March 13 a newly-arrived female was seen, and on April 4 and 5, an old bird in high plumage. Jefferson.—Summer sojourner. On April 4 first saw one flock of fifteen to twenty males and females; very active, mating, and a few in pairs. April 12.—The flock seems to have passed on, as I found only one left. No more flocks seen during the Spring, but single ones and pairs seen every few days.

Pileated Woodpecker (*H. pileatus*). St. Louis.—Resident. Seen on May 22. Jefferson.—Not seen.

Red-bellied Woodpecker (*C. carolinus*). St. Louis.—Summer, and I think also Winter, sojourner. On February 22 first saw two pairs, which were very much excited and noisy at breeding stands. Jefferson.—Probably seen, but not certainly identified.

Red-headed Woodpecker (*M. erythrocephalus*). St. Louis.—Summer resident. Remained through the Winter; two single birds and one pair seen in a week. On February 22 they were in the same numbers. On April 12 many were found in heavy timber, but not generally distributed. May 1.—Evident increase during the last few days. Jefferson.—Summer sojourner. On May 6 five males came in the afternoon, and during the following night about fifteen per cent came. May 12.—Almost the height of the season.

Yellow-shafted Flicker (*C. auratus*). St. Louis.—Summer resident. Remained through the Winter; two seen in one week. On March 14 several were here in company with robins and blackbirds. The bulk of the species was here on April 4, and from the 4th to the 8th was the height of transients. Jefferson.—Summer sojourner. First saw one on April 8, and next day three more. On April 9 there were a few more, and on the 10th they were heard every few minutes. On April 11 there was no increase, but the 21st brought us a flock of seven.

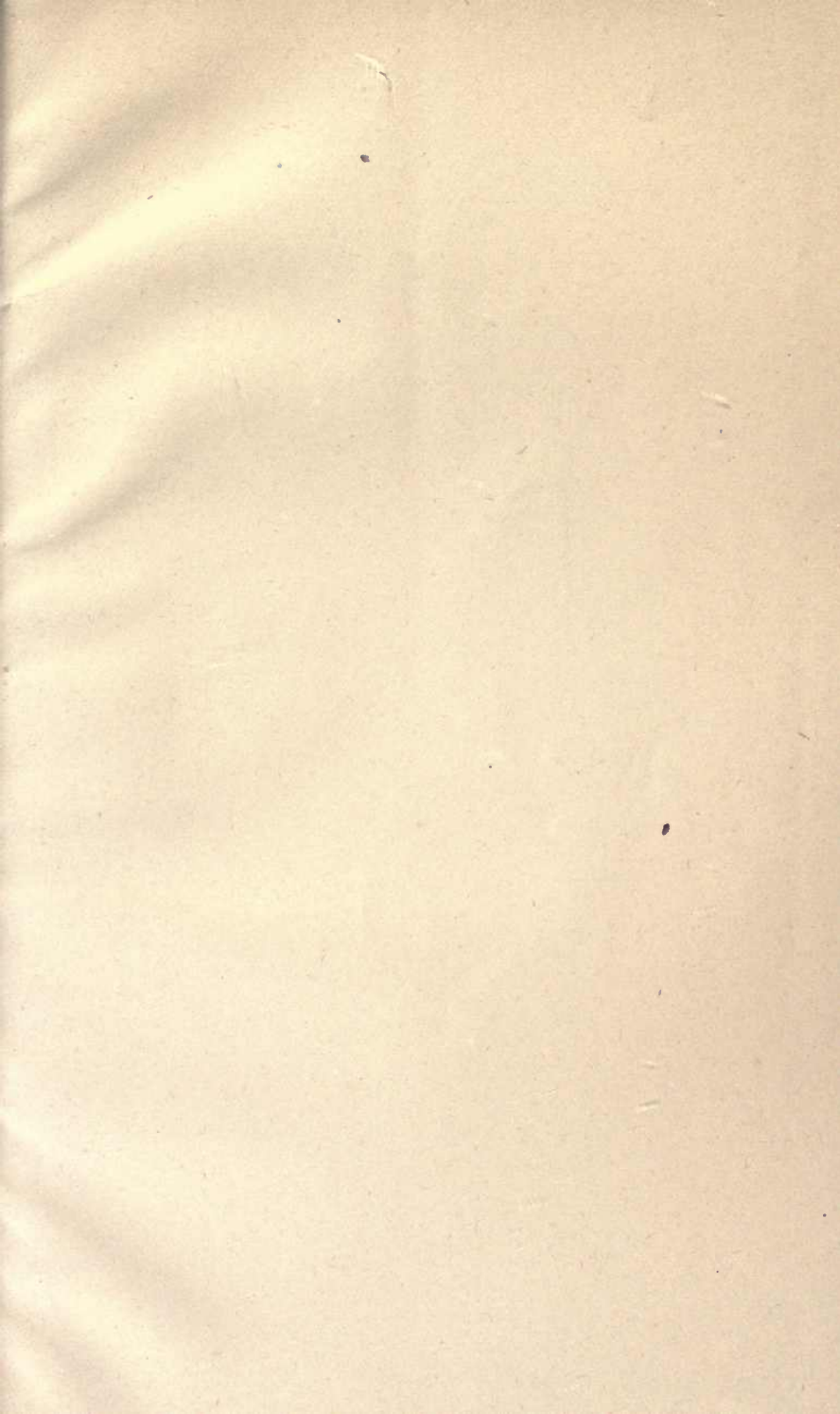
Belted Kingfisher (*C. alcyon*). St. Louis.—Summer sojourner. First seen on April 6, and by the 14th they were nest digging. Jefferson.—Summer sojourner. First saw one on April 4, and on the 11th two birds, seen for the third time.

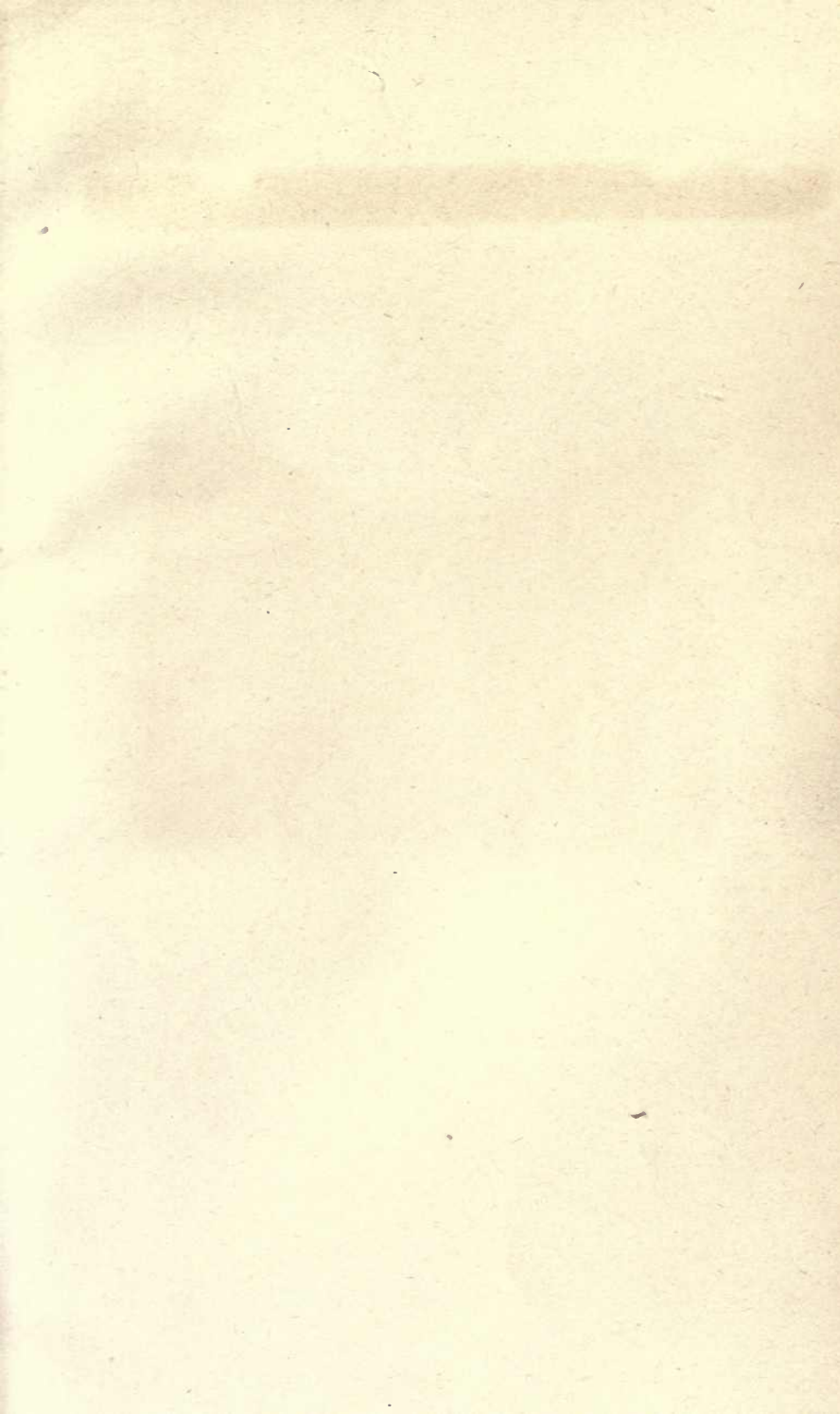
Yellow-billed Cuckoo (*C. americanus*). St. Louis.—Summer sojourner. First one noticed on May 16. Jefferson.—Summer sojourner. This and the next were undoubtedly seen about May 21, but not close enough to distinguish them.

Black-billed Cuckoo (*C. erythrophthalmus*). St. Louis.—Summer sojourner. First seen on May 2.

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